We claim:

1. A multi-colored electroluminescent filament with a helical color pattern, comprising:

a metal conductive wire as a core wire;

a medium insulating layer coated on the core wire;

a light emitting layer coated on the medium insulating layer;

a conductive layer coated on the light emitting layer;

one or more transmission conductive wires wound at interval on the conductive layer;

a transparent polymer casing tube or a color polymer casing tube disposed on the transmission conductive wires and an outer surface of conductive layer;

a polymer casing tube with a helical color pattern composed of at least 2 to 8 colors and disposed on the transparent polymer casing tube or the color polymer casing tube.

2. A multi-colored electroluminescent filament with a sectional color pattern, comprising:

a metal conductive wire as a core wire;

a medium insulating layer coated on the core wire;

a light emitting layer coated on the medium insulating layer;

a conductive layer coated on the light emitting layer;

one or more transmission conductive wires wound at interval on the outside of the conductive layer;

a transparent polymer casing tube or a color polymer casing tube disposed on the transmission conductive wires and an outer surface of conductive layer;

a polymer casing tube with sectional colors combination composed of at least 2 to 8 colors and disposed on the transparent polymer casing tube or the color polymer casing tube.

3. The electroluminescent filament according to claim 1, wherein said core wire is a metal wire having a diameter ranging from 0.1 to 1mm, and is led out as an electrode.

4. The electroluminescent filament according to claim 1, wherein said transmission conductive wires have a diameter of 0.06 to 0.12mm.

5. The electroluminescent filament according to claim 1, wherein said polymer casing tube has a diameter ranging from 0.5 to 3mm.

6. The electroluminescent filament according to claim 1, wherein said filament has a diameter ranging from 1 to 10mm.

7. The electroluminescent filament according to claim 1, wherein said medium insulating layer is a mixture coat of flexible binder having cyanoethyl as its base and BaTiO3 powder, with the thickness of 25μm to 60 μm.

8. The electroluminescent filament according to claim 1, wherein said light emitting layer is a mixture coat of flexible binder having cyanoethyl as its base and light emitting phosphorus powder, with the thickness of 25μm to 60 μm.

9. The electroluminescent filament according to claim 1, wherein said conductive layer is a semi-transparent, highly conductive, semi-solid viscous conductive substance, with the thickness of 0.05mm or less.

10. The electroluminescent filament according to claim 1, wherein said transmission conductive wires are at least one or more metal wires which are highly conductive and not easy to break; said metal wires wind, at interval, round the outer side of the conductive layer and is led out as the other electrode.

11. The electroluminescent filament according to claim 2, wherein said core wire is a metal wire having a diameter ranging from 0.1 to 1mm, and is led out as an electrode.

12. The electroluminescent filament according to claim 2, wherein said transmission conductive wires have a diameter of 0.06 to 0.12mm.

13. The electroluminescent filament according to claim 2, wherein said polymer casing tube has a diameter ranging from 0.5 to 3mm.

14. The electroluminescent filament according to claim 2, wherein said filament has a diameter ranging from 1 to 10mm.

15. The electroluminescent filament according to claim 2, wherein said medium insulating layer is a mixture coat of flexible binder having cyanoethyl as its base and BaTiO3 powder, with the thickness of 25μm to 60 μm.

16. The electroluminescent filament according to claim 2, wherein said light emitting layer is a mixture coat of flexible binder having cyanoethyl as its base and light emitting phosphorus powder, with the thickness of 25μm to 60 μm.

17. The electroluminescent filament according to claim 2, wherein said conductive layer is a semi-transparent, highly conductive, semi-solid viscous conductive substance, with the thickness of 0.05mm or less.

18. The electroluminescent filament according to claim 2, wherein said transmission conductive wires are at least one or more metal wires which are highly conductive and not easy to break; said metal wires wind, at interval, round the outer side of the conductive layer and is led out as the other electrode.

19. A method for manufacturing multi-colored electroluminescent filament with a helical color pattern, comprising:

placing a metal wire, as a central electrode core wire, at a central position of a coreless orientation squeezing automatic device;

forming an insulating layer, wherein a mixture coat of flexible binder having cyanoethyl as its base and BaTiO3 powder is put in the coreless orientation squeezing automatic device and is coated a plurality of times on the central electrode core wire so as to form the insulating layer;

forming a light-emitting layer, wherein a mixture coat of flexible binder having cyanoethyl as its base and light emitting phosphorous powder is placed in the coreless orientation squeezing automatic device and is coated a plurality of times on the insulating layer so as to form the light-emitting layer;

forming a conductive layer, wherein a semi-transparent, highly conductive semi-solid viscous conductive substance is put in the coreless orientation squeezing automatic device and is coated a plurality of times on the light emitting layer so as to form the conductive layer;

winding a transmission conductive wire;

covering a transparent polymer casing tube or color polymer casing tube with a automatic production line;

forming a multi-colored casing tube with helical color pattern, wherein the device

for coating polymer of a plurality of colors is used to form a continuously helical, multi-colored filament.

20. A method for manufacturing a multi-colored electroluminescent filament with sectional color pattern, comprising:

placing a metal wire, as a central electrode core wire, at a central position of a coreless orientation squeezing automatic device;

forming an insulating layer, wherein a mixture coat of flexible binder having cyanoethyl as its base and BaTiO3 powder is put in the coreless orientation squeezing automatic device and is coated a plurality of times on core wire so as to form the insulating layer;

forming a light-emitting layer, wherein a mixture coat of flexible binder having cyanoethyl as its base and light emitting phosphorous powder is placed in the coreless orientation squeezing automatic device and is coated a plurality of times on the insulating layer so as to form the light-emitting layer;

forming a conductive layer, wherein a semi-transparent, highly conductive semi-solid viscous conductive substance is put in the coreless orientation squeezing automatic device and is coated a plurality of times on the light emitting layer so as to form the conductive layer;

winding a transmission conductive wire;

covering a transparent polymer casing tube or color polymer casing tube with a automatic production line;

forming a multi-colored casing tube with a sectional color pattern, wherein a device for coating polymer of a plurality of colors is used to form a continuously sectional, multi-colored filament.

21. The method according to claim 19, wherein the insulating layer, the light emitting layer and the conductive layer are completed continually by the production line comprising at least three or more sets of coreless orientation squeezing automatic devices.

22. The method according to claim 20, wherein the insulating layer, the light emitting layer and the conductive layer are completed continually by the production line

comprising at least three or more sets of coreless orientation squeezing automatic devices.

23. A coreless orientation squeezing automatic device, comprising front and rear sets of rotary fixed wheels, air-tight box having an air pressure device, air-pressure device tube, a spherical fixing-center-member, outer ring of the spherical fixing-center-member, sealing ring, pressure valve of the spherical fixing-center-member, air-pressure device tube of pressure valve, mixture material in the spherical fixing-center-member and dry box.

24. A device for coating polymer of a plurality of colors, comprising: a material squeezing machine set having an electric motor on a composite wheel disk, a plurality of sets of fixed leading wheels, a traction wheel set, a cooling groove, a multi-heating-path mould head, an eight-channel moving contactor, a program control stand, an electric motor, speed-regulating wheel sets, and a control wire.